**REMARKS**

Claims 1 and 9-44 are pending. Claims 15-36 have been withdrawn. Claims 2-8 have been cancelled. Claim 1 has been amended.

Applicants thank the Examiner for the courtesy of a telephone conversation on July 12, 2010 regarding the un-entered claims recorded in the advisory action. The Examiner informed Applicants that the problem was the new claims 45 and 46 and if these were removed in a supplemental response, the claims would be entered and the remarks directed to why the claims were allowable would be considered. The Examiner agreed that the amendment in claim 1 did not constitute new matter. Applicants hereby submit the set of claims presented in the response to the final office action on June 10, 2010 absent claims 45 and 46 along with the remarks which describe how the cited references either alone or in combination do not render the present claims obvious. Indeed the combination is not proper as the two references teach away from each other and Applicants assert that there is no motivation provided in either reference to explore the subject of the presently claimed invention.

Rejection under 35 U.S.C. §112

Claim 1 has been amended to clarify the language of the claim with reference to SEQ ID NO: 1 as requested by the Examiner.

Rejection under 35 U.S.C. §103

Claims 1-5, 9-13 and 37-44 have been rejected as being unpatentable over Juillerat et al. and Xu-Welliver et al.

Juillerat et al.

Juillerat et al. disclose a maximum of 3 mutations in 10 mutants described in Table 1. These mutations are located at 140, 157, 159 and 160. The mutants were selected "to increase the activity of hAGT against BG derivatives. The increased *in vitro* activity of hAGT against BG derivatives directly translates into a much more efficient *in vivo* labeling" (p. 316 paragraph on significance).

Xu –Welliver et al. describe individual mutations that "reduce the ability of the protein to react with BG" (p. 519). This reference describes individually mutated residues between 150 and 173 to produce BG-resistant AGTs. Table 1 shows how a library was constructed in which each mutation was created in a separate clone. Reasons for generating AGT mutants relate to cancer therapy.

Not only did Xu-Welliver et al. not suggest or teach more than a single mutation in AGT but this reference teaches identifying mutants with an opposite effect to that described by Juillerat et al.

Since Xu-Welliver et al. teach how to modify AGT to prevent binding of BG and Juillerat et al. teach how to modify AGT to enhance binding of BG, a person of ordinary skill in the

art would not be motivated to combine the teachings of Juillerat et al. and Xu-Welliver et al.

In addition, the combination of the references would not teach the claimed invention as Xu-Welliver et al. modified single amino acids in AGT while Juillerat et al. modified up to only 3 amino acids and not 6-24 amino acids. Neither reference suggests that multiple mutations in excess of 3 might be advantageous.

The Examiner is respectfully requested to reverse the rejection.

## CONCLUSION

Applicants respectfully submit that this case is in condition for immediate allowance. Early and favorable consideration leading to prompt issuance of this Application is earnestly solicited.

Applicants submitted a notice of appeal and a petition for a three-month extension of time, together with authorization to charge Deposit Account No. 14-0740 in the amount of $825, in the response to final office filed on June 10, 2010. Please charge any deficiencies to the same Account.

Respectfully submitted,

NEW ENGLAND BIOLABS, INC.

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